
Principles of Petroleum Geology. *E. N. Tirasoo.* McGraw-Hill Book Company, Inc., New York. 1952. xix+449 pp. \$7.50.

This book, which is based on lectures given at the Royal School of Mines, London, is intended for both students and practitioners of petroleum geology. After a brief introduction, the author discusses the origin, migration, and accumulation of petroleum (67 pages); the world's oil fields (190 pages, of which 57 are devoted to fields in the United States); exploration, including geophysics (72 pages); exploitation of known fields, with a chapter on drilling muds (52 pages); and methods of correlation (29 pages). Format and typography are pleasing, and few printing errors appear.

As petroleum geology is a dynamic science that, in the author's own phrase, "has developed with increasing momentum," it seems incumbent on a writer on the subject (to say nothing of his publisher) to see that his work is as well abreast of recent developments as possible. Much evidence suggests that this book is at fault on this count. To take two random examples, the bibliography on migration of oil contains no reference later than 1939; and the oil-field map of the great West Texas basin is taken from a publication of 1938 and does not show oil fields that for years have been major producers. To rely extensively on the basic researches published in the 1930's is certainly permissible, but not to the exclusion of important works of more recent date.

This reviewer is unable to evaluate the author's grasp of the geology of foreign oil provinces, but several statements in regard to U. S. fields are inaccurate. The Salt Creek oil field of Wyoming is scarcely "on the eastward slope of the Big Horn Mountains" (page 223), as it lies at least 25 miles from the mountain front. The Central Basin Platform of West Texas was not "formed on a reef of Big Lime limestone" (page 200); on the contrary, the reef was formed on the uplift.

Such subjects as limestone reefs, facies changes, and unconformities do not receive separate treatment, but numerous examples of each are to be found in the many oil-field descriptions.

The author seems on his surest ground when discussing methods and techniques, as in the determination of porosity and permeability, the various geophysical methods, and the procedures in geologic mapping.

ROBERT L. BATES.

Soil Microbiology. *Selman A. Waksman.* John Wiley & Sons, Inc., New York, 1952. vii+356 pp. \$6.00.

This newest book from the prolific pen of Dr. Waksman is similar to his previous volumes, *Principles of Soil Microbiology* and *the Soil and the Microbe*. As there are no currently available books on this subject, this new text should find immediate use in college Soil Microbiology courses.

The aims of this book are "to survey the nature and abundance of microorganisms in the soil, to review the important role that they play in soil processes, and, so far as possible, to show the relation between them and soil fertility." A general discussion of the soil microbiological population and interrelationships, the decomposition of plant and animal residues and formation of humus, the transformation of nitrogen and other plant nutrient elements in the soil, and the associative and antagonistic effects of soil microorganisms is presented in sixteen chapters.

Dr. Waksman, the 1952 recipient of the Nobel Prize for Medicine (discovery and use of Streptomycin) has written a readable and interesting textbook. There are sufficient sub-headings and illustrations in the book to satisfy most instructors. A selected bibliography has been placed at the end of each chapter.

Historical coverage is good but little mention is made of recent and important findings on the stabilizing influence of clay minerals on soil organic matter and nitrogen, the effect of incorporated green manures on the destruction of soil humus, or the fractionation of soil humus using the newer techniques of chromatography, electrophoresis, spectroscopy and radioactive tracers.

Mechanisms of reactions (nitrification, nitrogen fixation, etc.) could have been discussed in metabolic terms of dehydrogenations, carrier systems and hydrations with appropriate enzyme systems specified rather than in terms of oxygen molecules utilized.

J. L. MORTENSEN AND W. P. MARTIN.

Quantum Theory of Matter. *J. C. Slater.* McGraw-Hill Book Company, Inc., New York. 1951. xiv+528 pp. \$7.50.

This book sketches the quantum theory of matter with a minimum of mathematical detail. It should serve non-physicists as well as physicists and students with a fair knowledge of mathematics as an excellent introduction to that vast subject. The book presupposes a fair understanding of classical and statistical mechanics, electromagnetism, thermodynamics, and elementary atomic and molecular structure. The first seven chapters develop the fundamentals of quantum mechanics and culminate with a treatment of the central field model of atomic structure and the theory of multiplet structure of complex atoms (chapters 6 and 7 respectively). The remaining chapters deal with the main subject of the book and bear the titles: the Hydrogen Molecule, Interatomic and Intermolecular Forces; the Metallic State; the Mechanical, Chemical, and Thermal Properties of Matter; Electrical Conductivity; the Nature of Dielectrics; and finally, Magnetism. There are several appendices which elaborate to some extent the mathematical details omitted in the text. Copious well selected problems at the end of each chapter serve to give the student further training and to help him round out and fix the ideas developed. However, close reading of the text will be required of the student in order to handle these problems, and unless he has a fair degree of maturity he should not attempt this book without a teacher. **Quantum Theory of Matter** is a welcome addition at the intermediate level for college and university instruction and it is a pleasure to recommend it.

B. T. DARLING.

Problems of Life. *Ludwig von Bertalanffy.* John Wiley & Sons, Inc. New York. 1952. xi+216 pp. \$4.00 (First American Edition).

This book is the English version of "Das Biologische Weltbild," first published in 1949, and is an exposition of Professor Bertalanffy's organismic conception and an evaluation of modern biological thought. The organismic conception is in contrast to both the mechanistic and vitalistic views. Based upon more recent advances in the natural sciences, it offers a much more acceptable approach to the explanation of life than either of the earlier views. The organism is treated as an integrated, functionally interdependent whole rather than as a sum of independently functioning parts. Gestalt psychology fits into the organismic conception so well that it might serve to illustrate the general approach to the organismic conception.

FRED H. GLENNY.